



# **Department of Defense (DoD) Request for NIOSH Certification of the Joint Service General Purpose Mask (JSGPM)**

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**MR. JOSEPH M. STEVENS  
Deputy Director, Joint Product Manager-  
Individual Protection (DJPM-IP)  
50 Tech Parkway, Suite 301  
Stafford, VA 22556**

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# Objective

- To supplement the existing NIOSH standard with an alternate permissible design for Department of Defense (DoD) applications using the Joint Service General Purpose Mask (JSGPM) – using the mechanical connector, being NIOSH certified, meet intent of DoD Instruction 6055.1 (Workplace Standards)
  - **Operators: DoD civilian and military first responder personnel**
  - **Operations: Use for “non-military unique situations”; e.g. emergency response during CBRN type events**
  - **Logistics: Spares/re-supply available DoD-direct at all installations**



# JSGPM NIOSH CBRN Standard

- JSGPM does not meet current Section 3.1 (interoperability) of the CBRN Standard
  - Mechanical connector must be standard 40 mm x 1/7 (NATO Thread), or
  - Single connection point on the respirator face piece
- But the JSGPM meets all performance requirements of the NIOSH CBRN standard (with NIOSH CBRN Chemical Agent Compliant Filters)



# JSGPM and CBRN Certification

- Inhalation Breathing Resistance
  - **JSGPM < 30 mm H<sub>2</sub>O @ 85 lpm**
  - **NIOSH CBRN Standard < 65 mm H<sub>2</sub>O @ 85 lpm**
  - **JSGPM uses Twin Filter Design and meets requirements**
- Low Profile Conformal Filter Design
  - **Less Torque on the Wearer's face Provides better Protection,**
  - **Provides Less Burden and Better Compatibility with other Equipment**



# Certification Under 42 CFR, Part 84

- JSGPM meets performance requirements of 42 CFR, Part 84, Subpart L – Chemical Cartridge Respirators
- Qualifies as a P100 respirator
- Expected Performance against Subpart L chemicals are listed in the table (\*data does not exist for  $\text{CCl}_4$  yet)
- Respirators can be submitted for certification against one or more of the listed chemicals

Agent	CBRN Filter
Ammonia	Yes
Chlorine	Yes
Hydrogen Chloride	Yes
Methylamine	Yes
Organic Vapors ( $\text{CCl}_4$ )	?
Sulfur Dioxide	Yes



## JSGPM – Supplemental Standard Progress

- **March 2004 – DoD met with NIOSH and discussed the possible certification of current military respirators and JSGPM. NIOSH tentatively agreed to the drafting of a unique CBRN military standard for military respirators**
- **July 2004 – NIOSH rescinded the possibility of a military standard after receiving advice from their legal counsel. NIOSH proposed that DoD petition OSHA for the development of an alternate standard under the provision of 29 CFR 1960.17**
- **September 2004 – Representatives of DoD, NIOSH and OSHA met via teleconference and discussed drafting an alternate military CBRN standard. Preliminary results of the meeting were positive but many details still needed to be worked out**



# JSGPM – Supplemental Standard Progress

- **February 2005 – DoD representatives met with OSHA in Washington DC and presented JSGPM features and the need to develop an Alternate Standard**
- **July 2005 – Service representatives met with Office of the Deputy Undersecretary of Defense for Installations and Environment (DUSD I&E) and discussed need and path forward for an Alternate Standard**
  - **Defined Military Unique versus Non-Military Unique**
  - **Alternate Standard Submittal to OSHA**
- **November 2006 – Draft policy memo defining Unique versus Non-Military Unique operations was distributed to the Joint Services for review**



# JSGPM – Supplemental Standard Progress

- **December 2006 –Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) non-concurred with policy memo**
  - **DA ESOH interpreted the initial policy memo to include chemical demilitarization activities**
  - **18,000+ currently used M40 masks would have to be replaced with NIOSH CBRN approved respirators**
  - **There are no OSHA regulations governing industrial types of activities for disposal of chemical warfare agents**
  - **Requested clarification to include the use of current CBRN protective masks for installation defense, response and consequence management**
  - **All has been resolved**





## JSGPM - Supplemental Standard Current Status

- **10-12 Jun 08:**
  - NIOSH supported and presented a DoD request for an additional configuration to the standard 40mm thread configuration through NIOSH Docket #139 for the JSGPM -- The Interagency Board (IAB) responded negatively
  - The IAB took issue with the pending NIOSH APR filter canister modification which adds the bayonet lug CBRN-approved filter – based on an interoperability issue and lack of a 40mm thread
  - The Navy provided input supporting the JPEO's recommended change to the standard approach
- **19 Aug 08**
  - Telecon with JPEO, JPM-IP, NPPTL, JSGPM PM – Discussed DoD approach: DoD Request to Supplement Existing NIOSH standard with an alternate permissible design for DoD Applications



# The JSGPM Redefines Performance



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# BACKGROUND

- **Milestone 0 was Jan 1997**
- **Milestone 1 was Oct 1998**
- **The requirement document was approved Sep 1998**
  - **Compliance with NIOSH standards was desired**
- **Critical Design Review was Apr 2003**
- **The requirement document was updated in Oct 2005**
  - **Clarified desire to have civilian installation first responders have NIOSH certification for commonality with warfighter first responders**
- **There are ~2.2 million warfighters that will be equipped with JSGPMs; 70K-100K are military and civilian installation first responders**





**The JSGPM is a revolutionary advancement in protective mask technology providing Superior Field of View, Breathing Resistance, Communications, Drinking System, and Sighting Interface resulting in a more effective and lethal warfighter**



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# JSGPM Breakdown



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# MAJOR FEATURES

Head Harness

Polynomial Spline Eyelens

Facepiece Assembly  
(Chlorobutyl/ Silicone Base (5%) Blend)

Front Module Assembly

Primary Filter

Drink Tube Coupler and Housing



The primary filter service life indicator shows the color blue when the unpackaged filter is no longer serviceable due to prolonged exposure to humid air





# Comparison



**JSGPM**



**C50**





# The JSGPM was designed specifically for the demanding needs of today's professional warfighter

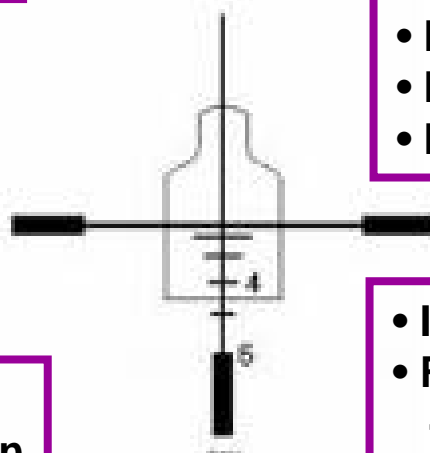
- Improved Protection
- Improved Survivability

## Protection

- Improved Field-of-View
- Improved Communications Interface
- Reduced Breathing Resistance
- Improved Drinking
- Improved Weight/Bulk
- Improved Wear/Comfort
- Improved Compatibility
- Improved Carrier design

## Quantity

- Reduced Unit Cost
- Improved Standardization



## Mission Performance

- Improved Sizing/Fit
- Reduced Maintenance
  - Fewer spare and repair parts
- Improved Reliability
- DoD interoperable and common mask for all operators

## Logistical Supportability





# Filter Attachment

- **Dual filter approach provides**
  - **More ergonomic weight distribution, reducing neck strain associated with legacy masks**
  - **Lower breathing resistance, and improved comfort providing increased warfighter efficiencies**
- **Three sealing points on two surfaces increases robustness of the interface seal**
- **Positive locking mechanism prevents the filter from becoming loose during operations**
- **Lower profile filter reduces the risk of filter seal breaks due to “bounce” of filter during running and contact with obstacles.**



# Filter Connectors



JSGPM Connectors



C50 Connector



# JSGPM Filter Connections



**Positive locking mechanism prevents the filter from becoming loose during operations.**



**5 Locking Points**





# Field-of-View

- Enables better target detection, identification, and improved hit probability
- Enhanced lethality and situational awareness in close combat situations





# Improved Breathing Resistance

- Offers one-half the breathing resistance of the M40/MCU2P mask systems
- Enhanced endurance and significantly reduced mission performance time
- Enhances Marksmanship Fundamental of breath control



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# Communications

- The JSGPM provides interoperability with existing legacy and commercial radio systems, while ensuring future operation with next generation communications equipment







# Sighting Interface

- Reduced eye relief enables the warfighter equipped with individual and crew served weapon systems an enhanced target acquisition range in MOPP IV
- Allows the warfighter to reduce or eliminate canting their M16A2 or M4 Carbine (the major infantry combat weapons)
- Improved interface with the M68 Close Combat Optic allows the warfighter to engage targets with both eyes open while maintaining situational awareness of events happening in close proximity
- The JSGPM provides the warfighter with improved night vision and binocular interface

**“The JSGPM fits well into the brow pad giving a better sight picture, I could look straight at the sight reticle which would improve your first shot kill ratio”**

**“The JSGPM took away the big cant on my weapon when I fired.”**



# Key Players

Name	Phone	Email
Mr. Les Boord Director, NPPTL	(412) 386-6593	<a href="mailto:zsq2@cdc.gov">zsq2@cdc.gov</a>
COL Art Kaminski DUSD (I&E)	(703) 604-1621	<a href="mailto:Art.Kaminski@osd.mil">Art.Kaminski@osd.mil</a>
Mr. Hew Wolfe OASA(IL&E)	(703) 695-7825	<a href="mailto:hew.wolfe@us.army.mil">hew.wolfe@us.army.mil</a>
Ms. Joy Erdman OPNAV Safety Liaison	(703) 602-2575	<a href="mailto:Joy.Erdman@navy.mil">Joy.Erdman@navy.mil</a>
Ms. Laurie Beebe Air Force IP Equipment	(478) 222-1723	<a href="mailto:Laurie.Beebe@robins.af.mil">Laurie.Beebe@robins.af.mil</a>

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# Questions/Comments